

Surgically placed paravertebral catheters: a key part of a successful ERAS programme in oesophagectomy management

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Analgesia for oesophagectomy traditionally includes a mid-thoracic epidural catheter. Epidurals are described as 'gold standard', but carry significant risk.



NAP 3
Major complications of
central neuraxial block in the UK

A comparison of the analgesic efficacy and side-effects of paravertebral vs epidural blockade for thoracotomy—a systematic review and meta-analysis of randomized trials

[R. G. Davies](#)¹, [P. S. Myles](#)^{1,2,3,*} and [J. M. Graham](#)⁴

ANESTHESIA & ANALGESIA[®]

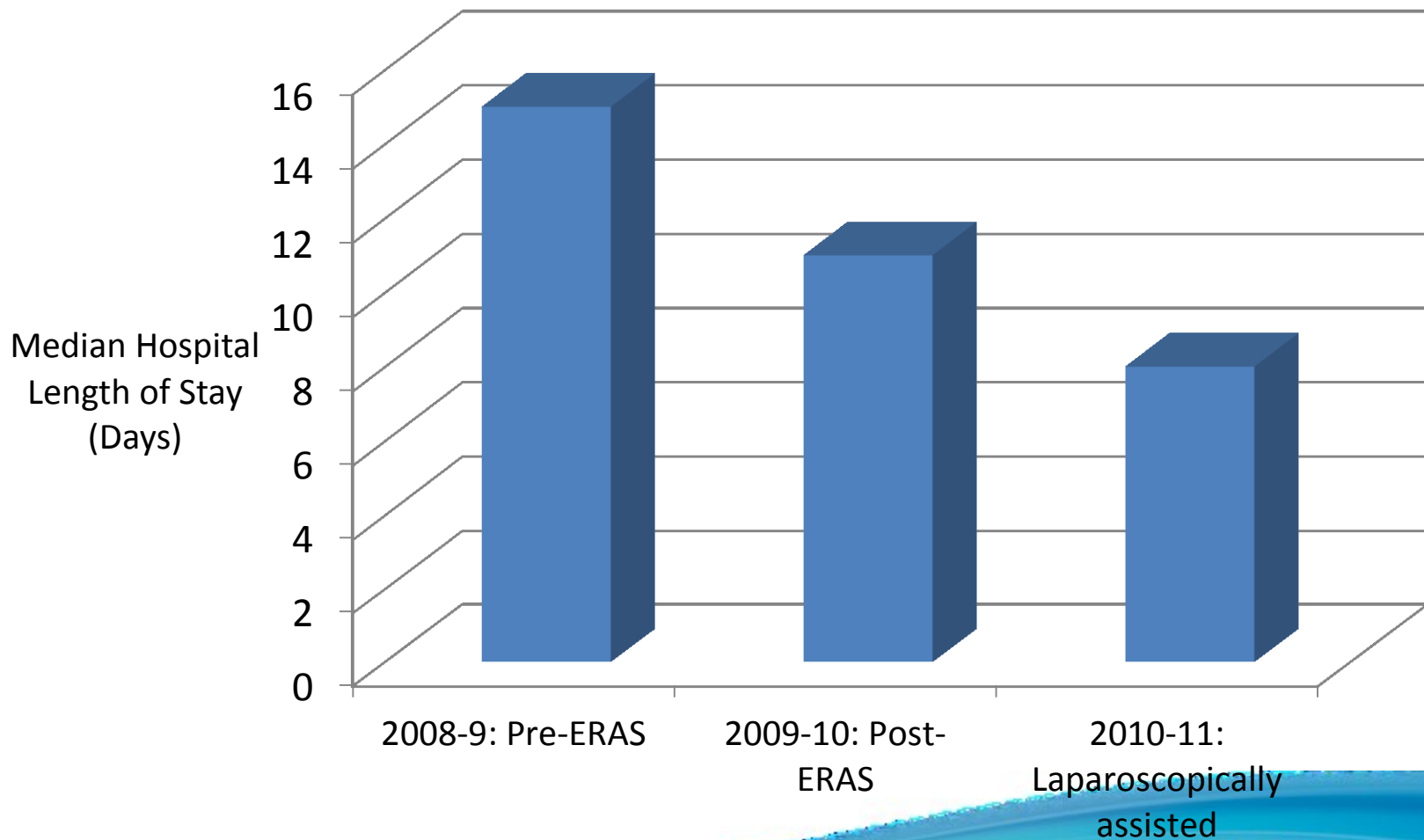
The Gold Standard in Anesthesiology

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A Systematic Review of Randomized Trials Evaluating Regional Techniques for Postthoracotomy Analgesia

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Laparoscopically-assisted surgery has allowed us to decrease the use of epidurals in favour of surgically-placed paravertebral catheters.



Daily milestones

Note: These milestones may need to be delayed in certain circumstances such as when your blood pressure is low or if you feel faint on standing up. They resume when your condition allows.

Day 1

- You will sit out of bed
- You will be in Critical Care

Day 2

- You will sit out of bed
- You will be transferred to ward
- You will walk a minimum of 10 metres
- Nurse will flush your feeding tube
- You will have nothing to eat or drink

Day 3

- You will sit out of bed
- You will walk the length of the ward x 2
- Nurse will flush your feeding tube
- You will have nothing to eat or drink

Day 4

- You will sit out of bed
- You will walk the length of the ward x 3
- You will be given fluids
- Nurse will flush your feeding tube

Day 5

- You will walk in the ward
- You can take a shower
- You can commence graduated fluids at 8am
- You will commence oral painkillers
- You will be given soup and ice cream at 6pm
- Your drips and drains will be taken out
- Your epidural will be taken out
- Your urinary catheter will be taken out

Day 6

- You can take a shower
- You can wear your own clothes
- You will be able to walk independently
- You will be able to climb stairs
- You will flush your feeding tube

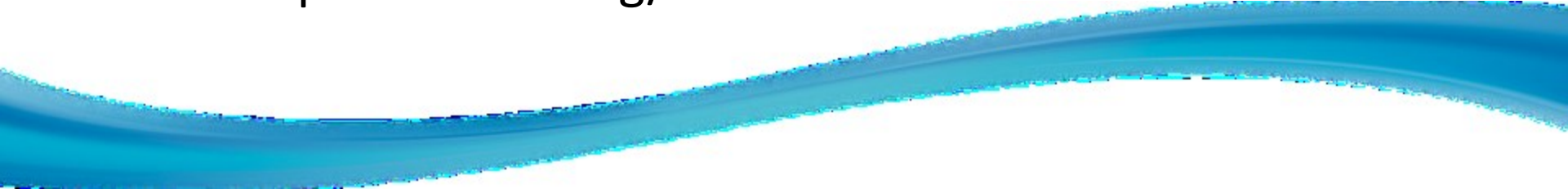
Day 7

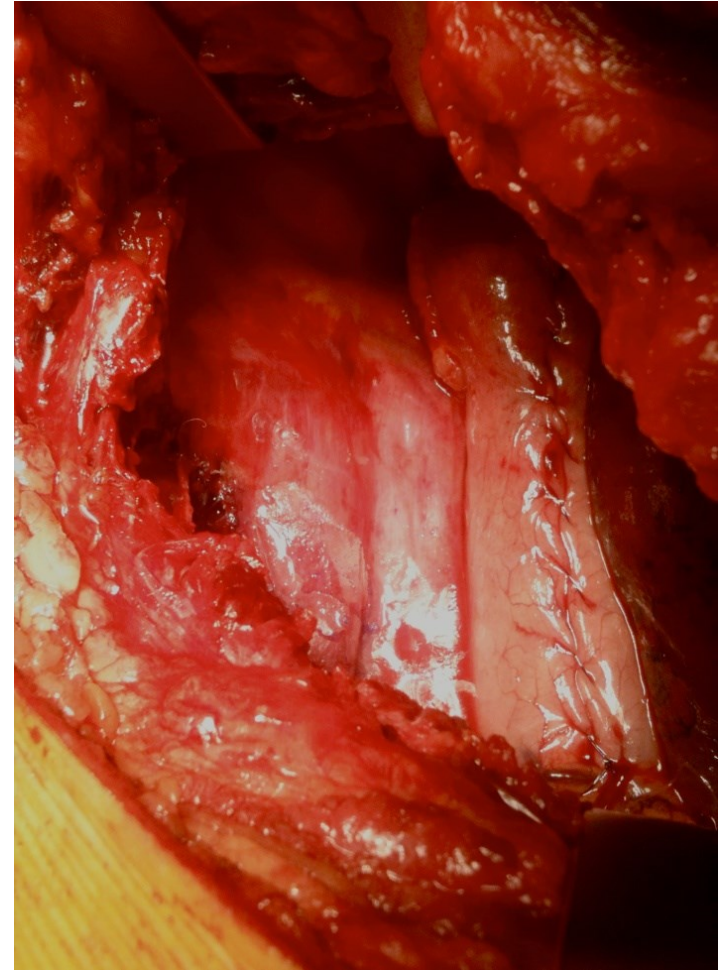
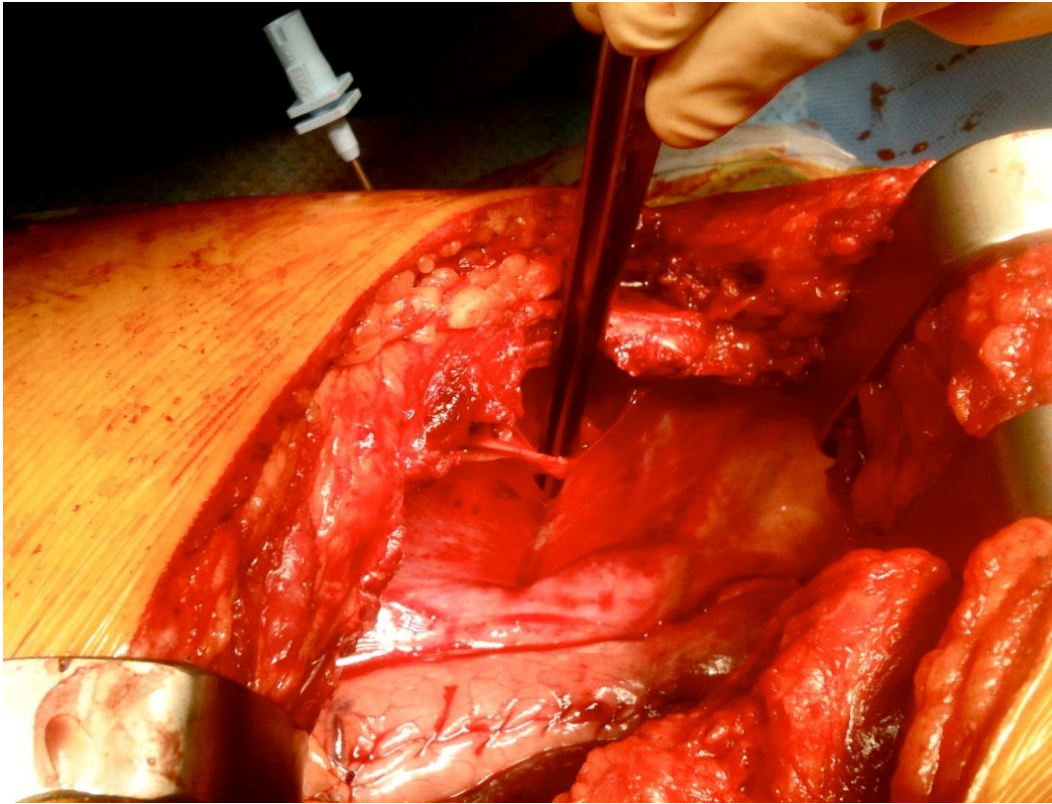
- You can take a shower
- You can wear your own clothes
- You will be able to walk independently
- You will flush your feeding tube
- You may go home

Day 8

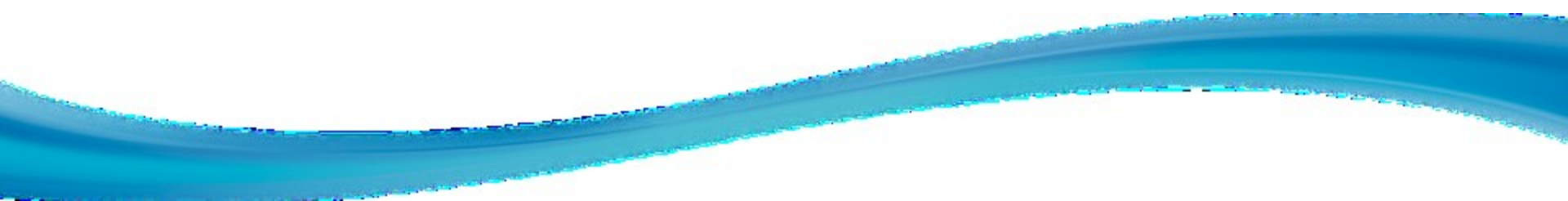
- You can take a shower
- You can wear your own clothes
- You will go home
- Your feeding tube will be removed in Outpatients

Anaesthesia technique

- Dependent on surgeon / anaesthetist
 - “Open” Oesophagectomy (Thoracocolaparotomy / Ivor-Lewis / McKeown)
 - Thoracic epidural prior to induction of anaesthesia
 - Post-operative infusion (0.125% levobupivacaine + 2 mcg/ml fentanyl)
 - Laparoscopically assisted
 - Paravertebral catheter; space dissected by **surgeon** and sealed with tissue glue
 - Post-operative infusion of 0.125% levobupivacaine (0.2ml/kg/hr)
 - Morphine PCA 1mg/ml. Lockout 5mins.
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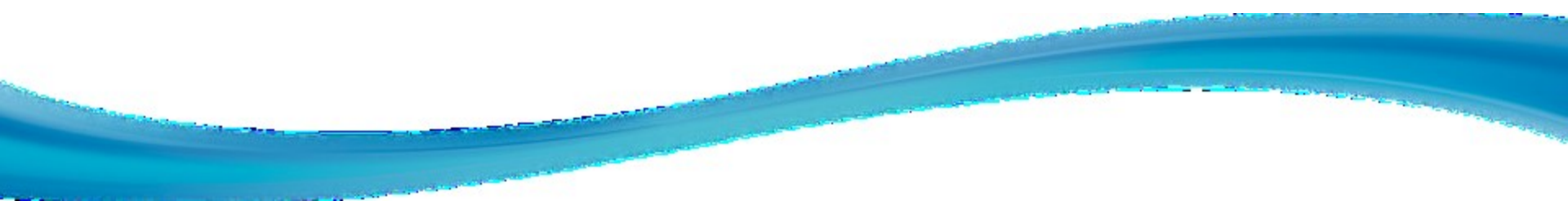


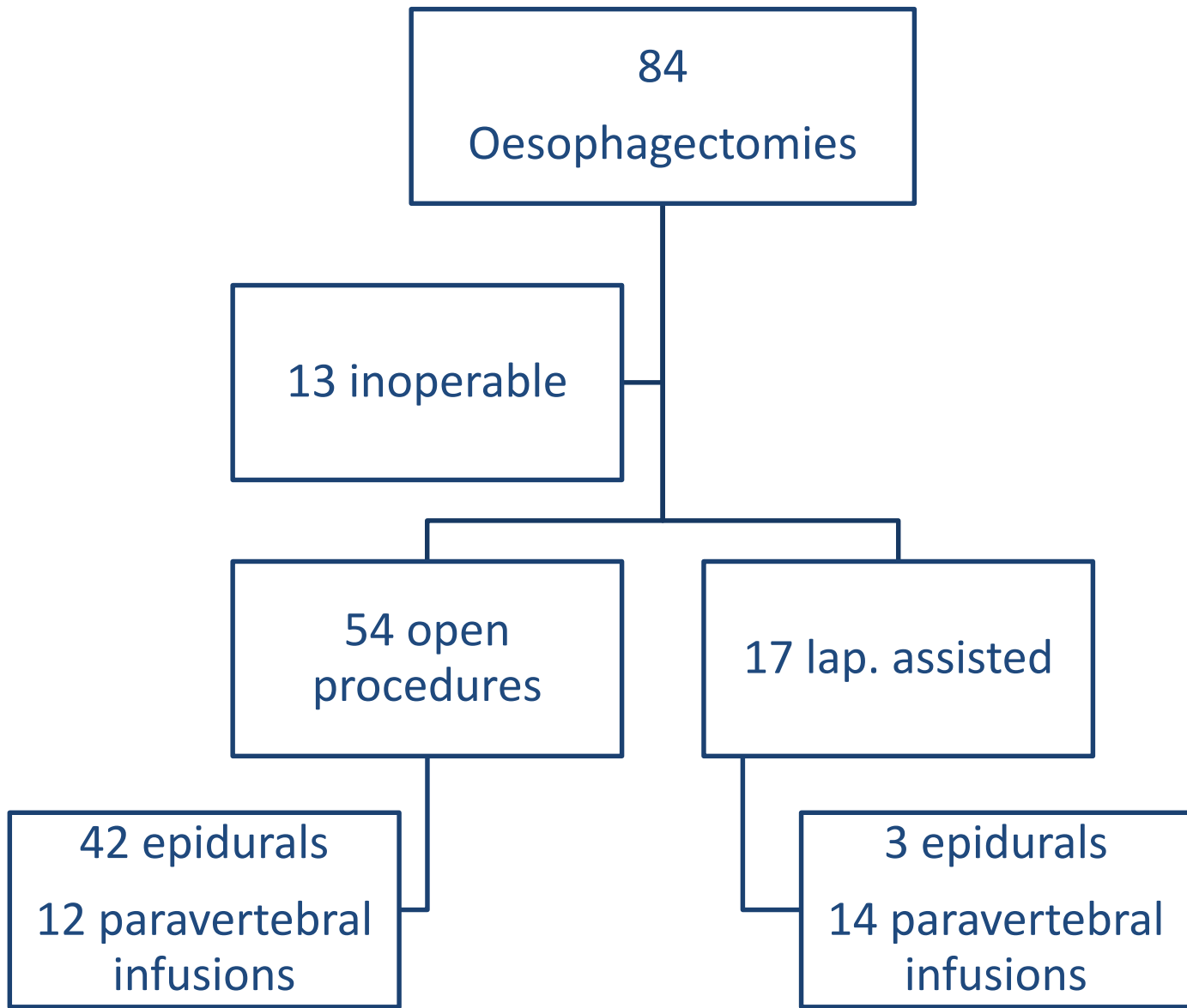
12 month retrospective analysis

- All oesophagectomies – 84 cases
 - Thoracic / Upper GI
 - Mean age 67 years (range 31-87, SD 10)
 - 80% male
 - 30 day mortality 2.7% (National average 4%)
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Review of paravertebral catheters vs epidurals

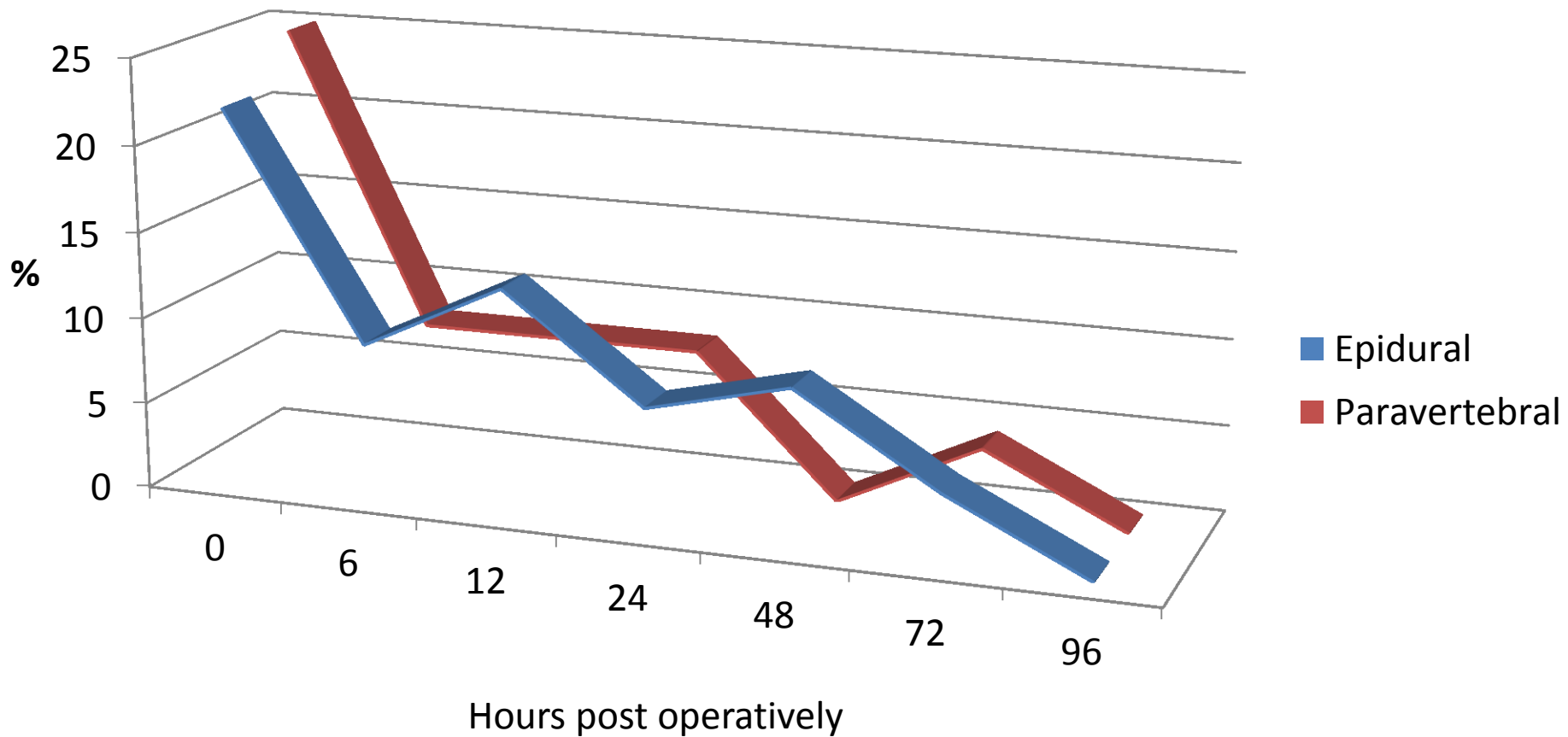
- Analgesia – pain scores / interventions
- Length of stay
- Fluid and vasopressor requirements





Analgesia

Percentage of patients with pain score 2 or more



Analgesia

	Paravertebral (26)	Epidural (45)
Resite	5 (with epidurals) (19%)	4 (9%)
>1 bolus local anaesthetic	1 (4%)	7 (16%)
PCA bolus / dose change	4 (15%)	10 (22%)
Other analgesic added	1 (4%)	2 (4%)
Overall interventions	11/26 (42%)	23/45 (51%)

Non significant $p=0.6$



Fluid requirements (ml/kg)

	Paravertebral	Epidural
Intra-operative	37	35
6 hours	10	10
12 hours	10	11
24 hours	17	17
48 hours	29	26
72 hours	27	28
98 hours	22	24

Non significant $p=0.95$



Noradrenaline requirements

	Paravertebral (26)	Epidural (45)
Number requiring post op Noradrenaline	8 (31%)	18 (40%)
Mean Noradrenaline dose	0.02 mcg/kg/min	0.03 mcg/kg/min

Non significant $p=0.6$



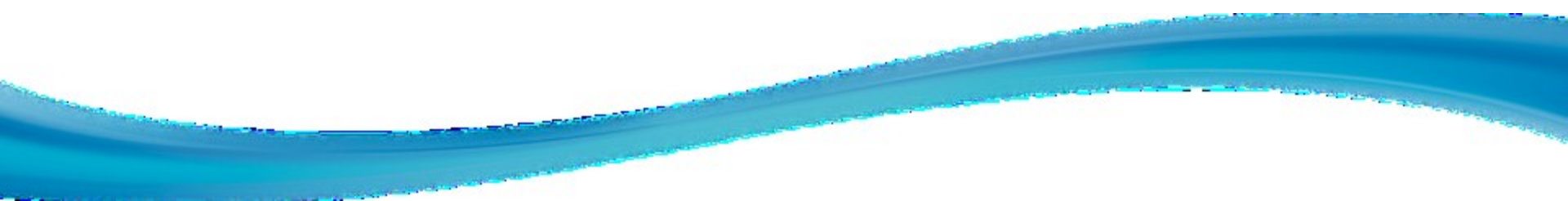
Length of Stay

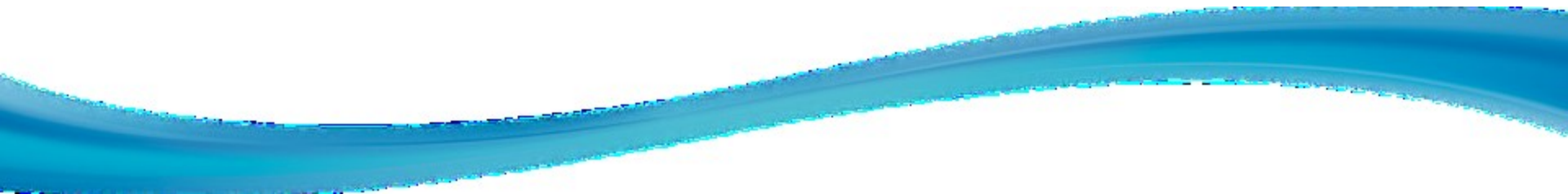
	Paravertebral	Epidural
Median ICU stay	20.5 hours	24 hours
Median hospital stay	9 days	10 days
ERAS completion?	58%	44%

Non significant $p=0.33$



Conclusions

- Surgically placed paravertebral catheters used within an ERAS protocol for oesophagectomies are comparable to epidural analgesia.
 - Their use shows trends towards successful completion of the ERAS pathway and decreased length of ICU and hospital stay.
 - Ongoing data collection – last year's data.
- 



Analgesia – open cases only

Percentage of patients with pain score 2 or more

